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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,036	03/02/2004	Shuji Yonekubo	Q80056	9751
23373	7590	05/18/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			LIANG, LEONARD S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/790,036

Applicant(s)

YONEKUBO ET AL.

Examiner

Leonard S. Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/144,766.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/02/04, 08/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification and Drawings

1. The lengthy specification and drawings has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification and drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

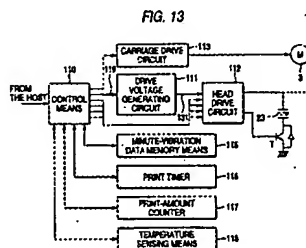
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

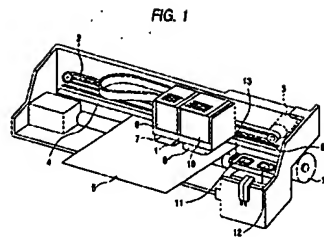
2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (EP Pat 7888882).

Suzuki et al discloses:

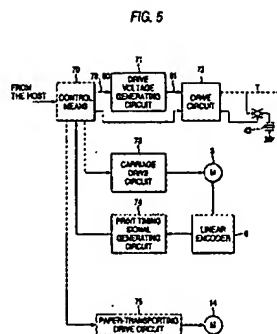
- {claims 1 and 11} A liquid jetting apparatus (figure 1)/controlling unit (figure 13, reference 110);



head member having a nozzle (figure 1, reference 7-8; column 5, lines 1-11);



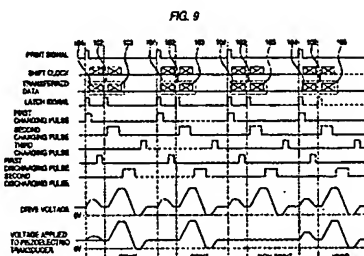
scanning mechanism that can cause the head member to relatively move with respect to the medium (figure 1, reference 3); a liquid jetting unit that can jet liquid from the nozzle (figure 1, reference 7-8; column 5, lines 1-11); an out-of-jetting micro-vibrating-area setting unit that can set out-of-jetting micro-vibrating areas before and after a liquid-jetting area to which liquid is to be jetted from the nozzle while the head member is caused to relatively move by the scanning mechanism (column 3, lines 7-13; preset period of time before and after discharging implies out-of-jet micro-vibration areas); a micro-vibrating unit that can cause liquid in the nozzle to minutely vibrate (column 1, lines 29-39); an out-of-jetting micro-vibrating controlling unit that can cause the micro-vibrating unit to operate when the head member is located in the out-of-jetting micro-vibrating areas (column 3, lines 3-13); a signal generating unit that can generate an out-of-jetting micro-vibrating signal as a periodic signal having a predetermined waveform (figure 5, reference 74), wherein;



the out-of-jetting micro-vibrating controlling unit is adapted to cause the micro-vibrating unit to operate based on the out-of-jetting micro-vibrating signal (column 3, lines 3-7); a measuring unit that can measure a continuous operating time of the micro-vibrating unit by the out-of-jetting micro-vibrating controlling unit is provided (figure 9; column 3, lines 3-13; column 8, lines 51-57; column 9, lines 10-17; column 11, lines 15-49; continuous operating time depends on drive signals corresponding to print data signals from linear encoder; column 11, lines 15-49); a standard-time storing unit that stores a predetermined standard time is provided (column 3, lines 3-13; column 8, lines 51-57; column 9, lines 10-17; column 11, lines 15-49); a signal-generating controlling unit that can compare the continuous operating time and the standard time, and that can cause the signal generating unit to change the out-of-jetting micro-vibrating signal based on the result of the comparison is provided (column 3, lines 3-13; column 8, lines 51-57; column 9, lines 10-17; column 11, lines 15-49; though meniscus vibration is varied based on print data and meniscus vibration data (i.e. measured time), this change in data is viewed in the context of a standard pre-set time period (i.e.

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standard time, and the relationship between the two is handled by the signal-generating controlling unit)



- {claim 2} the signal-generating controlling unit is adapted to cause the signal generating unit to change the out-of-jetting micro-vibrating signal in such a manner that a frequency of the out-of-jetting micro-vibrating signal is lowered when the continuous operating time becomes longer than the standard time (column 1, lines 49-58; column 2, lines 1-6, 45-49; column 24, lines 14-17)
- {claim 3} after the frequency of the out-of-jetting micro-vibrating signal has been lowered by the signal generating unit, the signal-generating controlling unit is adapted to cause the signal generating unit to change again the out-of-jetting micro-vibrating signal before a liquid-jetting operation in such a manner that the frequency of the out-of-jetting micro-vibrating signal is returned to an original frequency (column 22, lines 27-58; column 23; column 24, lines 1-17; Suzuki et al teaches that frequency of minute vibration varies with respect to temperature (column 22, lines 27-31) and it also teaches that frequency and pressure are decreased in the deceleration phase (column 24, lines 1-7, thus implying the lowering of temperature) and also the increasing of frequency in low temperatures (column 24, lines 7-11))

- {claim 4} after the frequency of the out-of-jetting micro-vibrating signal has been returned to the original frequency by the signal generating unit, the out-of-jetting micro-vibrating controlling unit is adapted to cause the micro-vibrating unit to operate based on the out-of-jetting micro-vibrating signal for a predetermined time before the liquid-jetting operation (column 3, lines 3-13)
- {claim 5} the signal-generating controlling unit is adapted to cause the signal generating unit to change the out-of-jetting micro-vibrating signal in such a manner that an amplitude of the out-of-jetting micro-vibrating signal is lowered when the continuous operating time becomes longer than the standard time (column 22, lines 27-58; column 23; column 24, lines 1-50; the amplitude varies with temperature the same way that frequency does (as applied to claim 2 above))
- {claim 6} after the amplitude of the out-of-jetting micro-vibrating signal has been lowered by the signal generating unit, the signal-generating controlling unit is adapted to cause the signal generating unit to change again the out-of-jetting micro-vibrating signal before a liquid-jetting operation in such a manner that the amplitude of the out-of-jetting micro-vibrating signal is returned to an original amplitude (see teachings of claims 3 and 5; amplitude can be varied with temperature)
- {claim 7} after the amplitude of the out-of-jetting micro-vibrating signal is returned to the original amplitude by the signal generating unit, the out-of-jetting micro-vibrating controlling unit is adapted to cause the micro-vibrating unit to

operate based on the out-of-jetting micro-vibrating signal for a predetermined time before the liquid-jetting operation (column 23, lines 15-18)

- {claims 8 and 12} liquid jetting apparatus (figure 1)/controlling unit (figure 13, reference 113); head member; scanning mechanism; liquid jetting unit; out-of-jetting micro-vibrating-area setting unit; micro-vibrating unit; out-of-jetting micro-vibrating controlling unit (as applied to claims 1 and 11 above); capping mechanism (figure 1, reference 11, 12; column 5, lines 2-7); the out-of-jetting micro-vibrating controlling unit is adapted to cause the micro-vibrating unit to operate during at least a part of time for which the capping mechanism seals the nozzle (column 24, lines 35-40), and
the out-of-jetting micro-vibrating controlling unit is adapted to repeat a controlling step of causing the micro-vibrating unit to operate for a first constant time (column 3, lines 3-13) and causing the micro-vibrating unit not to operate for a second constant time while the capping mechanism seals the nozzle (column 16, lines 19-25; micro-vibration does not operate when cap member is sealed)
- {claim 9} history recording unit (figure 13, reference 115; column 13, lines 37-42); time-changing unit (figure 5, reference 74; column 9, lines 10-17)
- {claim 10} environmental-information obtaining unit (column 22, line 36, temperature sensed); time-changing unit (figure 5, reference 74; column 9, lines 10-17; column 21, lines 23-32 and column 22, lines 27-32 show time, temperature, and micro-vibrations as being directly related to each other)

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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5/12/05
MANISH S. SHAH
PRIMARY EXAMINER